

What Do University or Graduate Students Need to Make the Cut? A Meta-analysis on Career Intervention Effectiveness

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E I LAUREATI PER FARE LA DIFFERENZA? UNA META-ANALISI
SULL'EFFICACIA DEGLI INTERVENTI DI SVILUPPO
PROFESSIONALE

ABSTRACT

The usefulness of providing career interventions in the transition from university to labour market is more and more advocated, in order to increase young people's competencies about career management and entrepreneurial skills. The present paper aims at focusing on the effectiveness of career interventions for university or graduate students and on its relationship with some study design and intervention characteristics. A meta-analysis was conducted on studies published between 2000 and 2015 which complied with the following inclusion criteria: university or graduate students as target population, the evaluation of specific career-related interventions or programs, and an experimental or quasi-experimental design. The selection procedure resulted in 9 eligible studies – overall assessing 12 interventions – out of 823 examined articles. The results indicated, on average, a large effect (weighted $ES = .80$; 95% $CI = .54, 1.06$) better outcomes from socio-constructivist interventions compared to those based on social cognition theory and person-environment fit model, and higher impact on the reduction of career indecision than on the increase of decision-making self-efficacy. Some recommendations for researchers and policy makers are

provided, as well as methodological issues and practical implications for career interventions are discussed.

Keywords: Career assessment; Career intervention; Experimental or quasi-experimental design; Meta-analysis; University or graduate students.

1. INTRODUCTION

The contemporary labour market is more and more characterized by instability and continuous changing in terms of employability, competencies and demands, also due to the role of globalization and innovation technologies. Career paths are not linear (Wickramasinghe & Perera, 2010) and multiple transitions can be experienced in the work life, therefore career development relies on the capacity to plan a career path rather than to identify a specific role. In this framework, people have to develop strategies to cope with the challenges of the labour market, in terms of flexibility, proactivity and adaptability (Savickas, 2012; Del Corso, 2013; Bocciardi *et al.*, 2017). This is particularly relevant in the transition from university to work settings, given the high rates of underemployment of high-skills young people and long-term unemployment (International Labour Organization, 2012). Indeed, nowadays there is a shared consensus about the need for promoting future career success, satisfaction and well-being (Ng & Feldman, 2007), as well as for preventing unsuccessful outcomes and increasing a suitable match between graduates and labour market (Koen, Klehe, & Van Vianen, 2012). In this regard, OECD (2004) strongly highlighted the usefulness of providing career interventions in the transition from university to labour market, in order to increase competencies about career management and entrepreneurial skills. Indeed, besides the relevance of attitudes and motivation for student achievement (Caputo, 2015 and 2017), students' representations about the labour market can impact on their sense of professional identity and favour the future integration between university education and real work contexts (Langher *et al.*, 2014). As noted by Whiston and Rose (2013, p. 250), «there are often questions about what type of services constitute career assistance or career guidance»; besides, a confusion still exists in the international literature about the operational differences between mentoring, coaching and counseling practices (McWilliams & Beam, 2013). Indeed, as stated by OECD (2004, p. 10),

[career interventions] may take place on an individual or group basis, and may be face-to-face or at a distance (including help lines and web-based services).

They include career information provision (in print, ICT-based and other forms), assessment and self-assessment tools, counseling interviews, career education programmes (to help individuals develop their self-awareness, opportunity awareness, and career management skills), taster programmes (to sample options before choosing them), work search programmes, and transition services.

Besides, career interventions are not often grounded on a shared theoretical framework because professionals tend to develop miniature theories to explore delimited career behaviours (Osipow, 1983) and, as noted by Watson and Stead (2006), this seems to reflect the times in which career theories have been produced. A recent review on career guidance and counselling by Bikos, Dykhous, Boutin, Gowen and Rodney (2013) identified three main theoretical models, consistently with what reported by other authors (Hartung & Subich, 2011; Patton & McMahon, 2014), which refer to person-environment fit model, social cognition theory (SCT) and social-constructivism. In brief, person-environment fit model (Holland, 1997) assumes that career success, satisfaction and stability are based on the coherence between the client's interests, abilities, values, vocations, personality characteristics and specificities of work settings. Therefore, interventions mainly aim at assessing job opportunities and career paths which better fit with individual job profiles. Instead, social cognition theory (Lent, Brown, & Hackett, 1994) focuses on cognitive factors (e.g., self-efficacy, outcome expectations, personal aims) which, intertwined with individual and environmental variables (e.g., gender, ethnicity, past experiences, social support, barriers), can sustain effective career-related decision-making and planning. In this sense, interventions are addressed to enlarge the client's professional opportunities, detect barriers and perceived obstacles to professional development and increase self-efficacy by working on false beliefs. Then, social-constructivism proposes a postmodern narrative approach (Savickas, 2005) according to which career decisions more widely refer to self-construction processes where autobiographical narratives about professional identity can enhance awareness about the relationship with the social context. In this framework, interventions aim at promoting both higher flexibility and adaptability to cope with occupational challenges and sense of coherence and continuity.

In the light of the above mentioned theoretical and practical variability, «in this time of accountability, many third parties (e.g., administrators, funding agents, governmental personnel, advisory boards) are requiring documentation that vocational or career services are effective and provided in the most cost-efficient manner» (Whiston, Brecheisen, & Stephens, 2003, p. 391). Despite the impact of career interventions has been supported by several qualitative reviews (Fretz, 1981; Holland, Magoon, & Spokane, 1981; Myers,

1986; Swanson, 1995), the need for further quantitative research evaluating their effectiveness is advocated (Whiston, Brecheisen, & Stephens, 2003), also because of the discrepancies in findings from past meta-analytic studies.

2. BRIEF OVERVIEW ON PAST META-ANALYTIC STUDIES

The initial meta-analytic studies about career counseling outcomes pertained to career-education strategies (Baker & Popowicz, 1983) and individual, group or class, and alternative career interventions (Spokane & Oliver, 1983), respectively. Baker and Popowicz (1983) reported an overall effect size (ES) of .50 for 18 career-education studies from 1970 to 1982; instead, Spokane and Oliver (1983) evaluated 52 studies carried out from 1950 to 1979 out of a total of 6,700 records, resulting in a mean ES of .85 over all types of career interventions. A further work by Oliver and Spokane (1988) on 58 studies published between 1950 and 1982 found an overall ES of .82 and a weighted ES of .48. This work was replicated by Whiston, Sexton and Lasoff (1998) in an updated meta-analysis on 47 studies published between 1983 and 1995 and found substantially lower and moderate effects of career interventions, with an unweighted ES of .45 and a weighted ES of .30. As well, a meta-analysis by Brown and Ryan Krane (2000) examining career interventions specifically designed to facilitate career choice found an overall average weighted ES of .34, consistently with the findings by Whiston *et al.* (1998). Then, a recent study by Spokane and Nguyen (2016) on 23 reviews of research on the evaluation of career assistance from 1970 to 2014 indicated that in meta-analytic reviews of controlled career intervention studies treated participants were better off than 60% to 67% of control participants, consistently with a weighted ES of .30. An updated meta-analysis of career choice intervention conducted by Whiston, Li, Goodrich Mitts and Wright (2017), which is a replication of Brown and Ryan Krane's work (2000), included 57 published and unpublished studies that produced a weighted mean effect size of .35. In *Table 1* a summary of previous meta-analyses results providing a mean effect size of career intervention effectiveness is presented.

Overall, despite generally positive effects having been found, career interventions showed a variable (from small to large) rather than a uniform effect, depending on treatment types and modalities, outcomes and examined characteristics. With regard to treatment types and modalities, Oliver and Spokane (1988) sought evidence that different interventions had different effects, indicating career classes as the best method of delivering career assistance. Whereas, Whiston *et al.* (1998) found that individual career

counselling was the most effective practice, while self-directed interventions were the best in terms of cost-benefit ratio. A further meta-analysis by Whiston *et al.* (2003) showed that, when comparing different treatment modalities, there were few differences in terms of effectiveness among individual career counselling, groups, workshops and classes, with the exception of counsellor-free interventions (e.g., computer-assisted ones) which were not so effective.

Table 1. – Summary of meta-analyses on career intervention effectiveness.

META-ANALYSES	NUMBER OF STUDIES	PERIOD	TARGET	EFFECT SIZE
Baker and Popowicz (1983)	18	1970-1981	Elementary to High school	.50*
Spokane and Oliver (1983)	52	1950-1979	Elementary school to Adult	.85*
Oliver and Spokane (1988)	58	1950-1982	Elementary school to Adult	.48
Whiston <i>et al.</i> (1998)	47	1983-1995	Elementary school to Adult	.30
Brown and Ryan Krane (2000)	62	1950-1997	Elementary school to Adult	.34
Spokane and Nguyen (2016)	23	1970-2014	Elementary school to Adult	.30
Whiston <i>et al.</i> (2017)	57	1996-2015	Middle school to Adult	.35

Note: * Unweighted effect size.

Besides, career interventions have been demonstrated to differently contribute to several outcomes. Oliver and Spokane (1988) found that treatments influenced subjects' career decision-making, understanding of careers and career-related adjustment, compared to other possible outcomes (such as career-related knowledge or self-concept development). Whiston *et al.* (1998) replicated and extended the previous meta-analysis by Oliver and Spokane (1988), founding prevalent effects on career maturity and career indecision. The development of vocational identity was then indicated as main outcome by Brown and Ryan Krane (2000), while further research (Reese & Miller, 2010) highlighted that career interventions were effective in increasing career decision-making self-efficacy but not in decreasing career-decision making difficulties.

In addition, significant differences in effectiveness of interventions emerged based on certain critical ingredients or study characteristics (Brown & Ryan Krane, 2000). For instance, Oliver and Spokane (1983) found that the only significant predictor of ES was treatment intensity in terms of number of hours or sessions. Instead, Whiston *et al.* (1998) found that neither the length of time nor the number of sessions had an effect on ES; while Brown and Ryan Krane (2000) reported that ES tended to increase up to five sessions and then precipitously decreased.

With regard to the variability in the effectiveness of career interventions, research advocates the usefulness to understand what works with specific target populations (Oliver & Spokane, 1988). Indeed, some pieces of research highlighted that guidance efforts may be most effective with pre-teenage students (Oliver & Spokane, 1988) and that ES is higher for school students than for college ones (Whiston, Sexton, & Lasoff, 1998). Therefore, research questions about the effectiveness of career interventions should be more sophisticated and analytical (Oliver & Spokane, 1988).

In this regard, previous meta-analyses have included a wide range of career interventions along the entire life-span from childhood to adulthood. However, whereas career interventions addressed to school-aged children and late adolescents mainly focus on the potential role of interests, attitudes, vocations and family influences on future career, those addressed to adult targets meet different needs, which are more consistent with actual job challenges requiring professional skills and career strategies. This does not always consent the disentanglement of the evidence of career intervention effectiveness based on specific targets and career development stages. In particular, the transition from university to labour market seems to be quite interesting because of the need for integrating both vocational and occupational identity, respectively referring to subjective desires and demands of the production system. Therefore, focusing on this specific transition phase of career path could provide more exhaustive and appropriate information about the effectiveness of career interventions aimed at favouring the labour market entry of high-skills young people. As well, it could allow the detection of the most successful and promising treatment characteristics and modalities with regard to the intervention planning and provision, by testing the specific role of some moderators previously considered in the literature such as career intervention length and outcomes. In addition to this, it could be interesting to examine how the effectiveness of such interventions may vary depending on different theoretical and conceptual models, which have not been taken into account in past meta-analytic studies, despite the remarkable relevance of the reference logical framework of interventions in order to explain potential change processes to achieve desired outcomes.

To overcome the discussed limitations, the present paper aims at focusing on the effectiveness of career interventions specifically addressed to university or graduate students through a meta-analysis on the most recent experimental or quasi-experimental research. By career interventions we refer to any treatment or effort intended to enhance an individual's career development or to enable the person to make better career-related decisions, consistently with the widespread and influential definition provided by Spokane and Oliver (1983). As also noted by Walsh, Savickas and Hartung (2013), according to this broad definition, a range of interventions can be included such as individual or group career counselling, workshops or classes. The purpose of the present meta-analysis is to explore the relationship between the effects of career interventions and some study design characteristics (e.g., number of study participants, length, follow-up measures), type of interventions (e.g., reference theoretical model and treatment modalities) and examined outcomes.

3. METHOD

3.1. *Data collection, studies and selection criteria*

The population of studies for this meta-analysis was limited to the empirical literature on the effects of career interventions and programs addressed to university or graduate students. All searches were conducted in January 2016 using the following databases: *Proquest Psychology Journal*, *Scopus*, and *Web of Science*. The query used was:

university or academ* or college [AND] guidance or counsel* [AND] vocation* or job or occupation* or career or profession* [AND] program* or intervention* [AND] effic* or effectiv*.

The search was restricted to 2000-2015 publication year period and limited to abstracts (*Proquest Psychology Journal* and *Scopus*) or topic (*Web of Science*). The query returned 326 records in *Proquest Psychology Journal*, 425 records in *Scopus* and 516 records in *Web of Science*, with a total number equal to 1267. Then 441 duplicates across the different databases were eliminated, thus resulting in 823 records. After examining the abstracts, only 259 were considered relevant to career counseling or guidance. In order to read full-text articles, 221 articles were obtained via the university library, whose 68 were excluded because full-texts were not written in English or in other

European languages. The following inclusion criteria were then applied to the remaining 153 records: the studies (a) had as target population university or graduate students, (b) pertained to the evaluation of specific career-related interventions or programs, and (c) were experimental or quasi-experimental with treatment or comparison groups. A review of the articles' full-texts was independently performed by two researchers and any discrepancies were resolved by consensus in order to identify articles which fully met the inclusion criteria.

Out of the total of 153 articles, only 65 specifically had university or graduate students as participants. Fourteen studies pertained to the evaluation of the effects of career-related interventions or programs. The selection procedure yielded a final pool of 9 studies which were conducted according with an experimental or quasi-experimental design with treatment or comparison groups.

3.2. Coding of study information

The following data from the studies were coded: reference theoretical model for career intervention (based on the original authors' definitions), type of career intervention (individual, group, self-directed or mixed), number of study participants (respectively for the total, treatment and control group), length (in hours and number of sessions), number of examined outcomes, type of examined outcomes (based on the measures utilized), and presence of follow-up measures. For the articles proposing the evaluation of two (or more) alternative career interventions, data were coded for each intervention separately.

3.3. Analytic strategy

Effect size (ES) refers to the magnitude or strength of the findings that occur in research studies. In this meta-analysis, effect sizes were calculated as a standardized mean difference in which the post mean of the control group was subtracted from the post mean of the treatment group and divided by the pooled standard deviation (SD) of the two groups. Comparisons between treatment and control groups were calculated using the standardized effect size (g), by adjusting the calculation of the pooled standard deviation with weights for the sample sizes (Hedges & Olkin, 1985). For calculating effect size for mean differences of groups within a pre-post-control design, the pooled pretest standard deviation for weighting the differences of the pre-

post-means was used (Morris, 2008). When means and standard deviations were not available, methods described by Lipsey and Wilson (2001) were used. Treatment effects were calculated separately for each outcome. However, in order to achieve an average ES, the mean of the outcomes for both each intervention and study was computed and this synthetic score was used as the unit of analysis.

The resultant effect size gives the magnitude of the treatment effect, with an effect size of .20 considered small, .50 in the moderate range, and .80 large (Cohen, 1988).

3.4. Inter-rater reliability

A transparent and replicable coding protocol was developed to code study information and effect sizes. The level of agreement between two independent raters was determined by Kappa (K) coefficients for dichotomously scored variables, and intraclass correlation coefficients (two-way mixed, average models) for continuously scored variables. Kappa coefficients ranging from .61 to .80 were interpreted as substantial agreement (Rigby, 2000); while the ICCs were interpreted similarly as Cronbach's alpha, with ICCs > .80, indicating high consistency between the two raters. The coefficients were: reference theoretical model for career intervention (K = .87), type of career intervention (K = .95), total number of study participants (ICC = 1), number of treatment participants (ICC = 1) and number of control participants (ICC = 1), length in hours (ICC = .90), number of sessions (ICC = .95), number of examined outcomes (ICC = .97), type of examined outcomes (K = .90) and presence of follow-up measures (K = 1). The ICC indicating the level of agreement between the two raters about the effect sizes calculation was .90. All disagreements were solved through discussion.

4. RESULTS

The search procedure resulted in 9 eligible studies dealing with the effectiveness of career interventions which were conducted between 2000 and 2015 (*Table 2*).

Overall the eligible studies tested the effectiveness of 12 interventions, because three studies out of the total (McKay, Bright, & Pryor, 2005; Dik & Steger, 2008; Spurk *et al.*, 2015) aimed at evaluating two alternative interventions.

Table 2. – Summary of eligible studies and characteristics of interventions.

Study	Reference theoretical model	Type of intervention	Length in hours	Number of sessions	Evaluation design	Total number of study participants	Number of treatment participants	Number of control participants	Follow-up	Number of outcomes	Outcome	Effect size by outcome	Effect size by intervention	Effect size by study
Obi (2015)	Social-constructivism	Group	4.5	6	Randomized control trial	50	25	25	Yes (after 8 weeks)	1	Career indecision	-5.93	5.93	5.93
Spurk, Kauffeld, Barthauer and Heinemann (2015)	Social-cognition theory	Group	16	2	Control trial	38	16	22	No	3	Networking behavior	.17	.03	.20
											Career planning	-.12		
											Career optimism	.03		
	Social-cognition theory	Mixed (Group + individual)	26	5	Control trial	45	23	22	No	3	Networking behavior	.01	.37	
											Career planning	.55		
											Career optimism	.56		
Behrens and Nauta (2014)	Person-environment fit	Self-directed	NA	1	Control trial	80	39	41	No	4	Number of career alternative considered	.56	.11	.11
											Career exploration	-.11		
											Career decision-making self-efficacy	-.09		
											Career indecision	.09		

Rowell, Mobley, Kemer and Giordano (2014)	Social- cognition theory	Group	4	4	Randomized control trial	40	20	20	No	1	Career indecision/ difficulties	-.45	.45	.45
			16	2		89	42	47	No	2		.62	.51	.51
Di Fabio and Maree (2013)	Social- constructivism	Group	8	8	Control trial	40	20	20	No	3	Rational decision- making Global self-esteem	.01		
			16	2		89	42	47	No	2		-.39		
Lim <i>et al.</i> (2010)	Social- cognition theory	Group	8	8	Control trial	40	20	20	No	3	Career maturity	.70	.40	.40
			16	2		89	42	47	No	2				
Dik and Steger (2008)	Person- environment fit	Group (standard)	2	2	Randomized control trial	63	33	30	No	2	Career decision- making self-efficacy Meaning in life	.54	.19	.25
			2	2		58	28	30	No	2		-.17		
	Person- environment fit	Group (calling/ vocational)	2	2	Randomized control trial	58	28	30	No	2	Career decision- making self-efficacy Meaning in life	.59	.32	
			2	2		58	28	30	No	2		.05		

McKay, Bright and Pryor (2005)	Person- environment fit	Individual	2	1	Randomized control trial	45	15	30	Yes (after one month)	2	Irrational career- related thoughts	-.86	.85	1.03
											Career decision- making self-efficacy	.84		
											Irrational career- related thoughts	-1.28	1.20	
	Social- constructivism	Individual	2	1	Randomized control trial	45	15	30	Yes (after one month)	2	Career decision- making self-efficacy	1.13		
Sullivan and Mahalik (2000)											Career decision- making self-efficacy	1.48	1.21	1.21
									Yes (after 6 weeks)	2	self-efficacy			
	Social- cognition theory	Group	9	6	Control trial	61	31	30			Vocational exploration and commitment	.93		

Note: NA = Not Available. Effect size by outcome is computed as difference between the treatment and control conditions. Effect size by intervention and study are computed by reversing the sign of the effect sizes to ensure that the convention is applied consistently.

Four of these intervention assessments were categorized as randomized control trials (RCTs) with treated and control groups created through random assignment (Dik & Steger, 2008; Rowell *et al.*, 2014; Obi, 2015) and eight as control trials (CT) based on quasi-experimental designs with comparison groups without random assignment (Sullivan & Mahalik, 2000; McKay, Bright, & Pryor, 2005; Lim *et al.*, 2010; Di Fabio & Maree, 2013; Behrens & Nauta, 2014; Spurk *et al.*, 2015).

With regard to the reference theoretical model for career intervention, five interventions were based on the social cognition theory (SCT), four were based on the person-environment fit model and three on the social-constructivism. Considering the type of career intervention, eight interventions referred to group, two to individual, one to self-directed and one to mixed (group counseling and individual coaching) treatments. The total number of study participants for each intervention assessment ranged from 38 to 89 ($M = 54.50$; $SD = 16.38$), with the treatment group including from 15 to 42 ($M = 25.58$; $SD = 9.17$) and the control group including from 20 to 47 ($M = 28.92$; $SD = 8.25$) participants respectively. The length of interventions was provided in eight studies, with the exception of the study by Behrens and Nauta (2014). It was comprised between one and eight sessions, with an average of 3.33 ($SD = 2.39$), and a total number of hours per intervention varying from two and 26 hours ($M = 8.32$; $SD = 7.90$). The number of examined outcomes ranged from one to four per intervention ($M = 2.25$; $SD = .87$) and the main types referred to career decision-making self-efficacy (measured in seven interventions) and career indecision (measured in four interventions). Four intervention evaluation designs also reported the presence of follow-up measures assessed from four to eight weeks after the treatment completion.

The average ES per intervention was .96 ($SD = 1.61$) with a range from .03 to 5.93 and a sample size weighted ES of .80 (95% CI = .54, 1.06) (Figure 1). In detail, three interventions had a null ES ($< .2$), five a small ES (from .2 to .5), one a moderate ES (from .5 to .8) and four a large ES ($\geq .8$). Specifically, experimental designs showed on average higher effectiveness (weighted ES = 1.38; 95% CI = .73, 2.03) than quasi-experimental ones (weighted ES = .41; 95% CI = .19, .63) (Figure 2). As illustrated in Figure 3, some ES differences emerged by the reference theoretical model for career intervention, indicating that ES for socio-constructivist interventions (weighted ES = 2.51; 95% CI = .48, 4.54) was generally higher than those based on social cognition theory (weighted ES = .48; 95% CI = .13, .82) and on the person-environment fit model (weighted ES = .33; 95% CI = .13, .53).

Focusing on the main examined outcomes (Figure 4), the effects on career decision-making self-efficacy (weighted ES = .74; 95% CI = .39, 1.39) were on average lower than the effects on career indecision (weighted ES = 1.54; 95% CI = .77, 2.30).

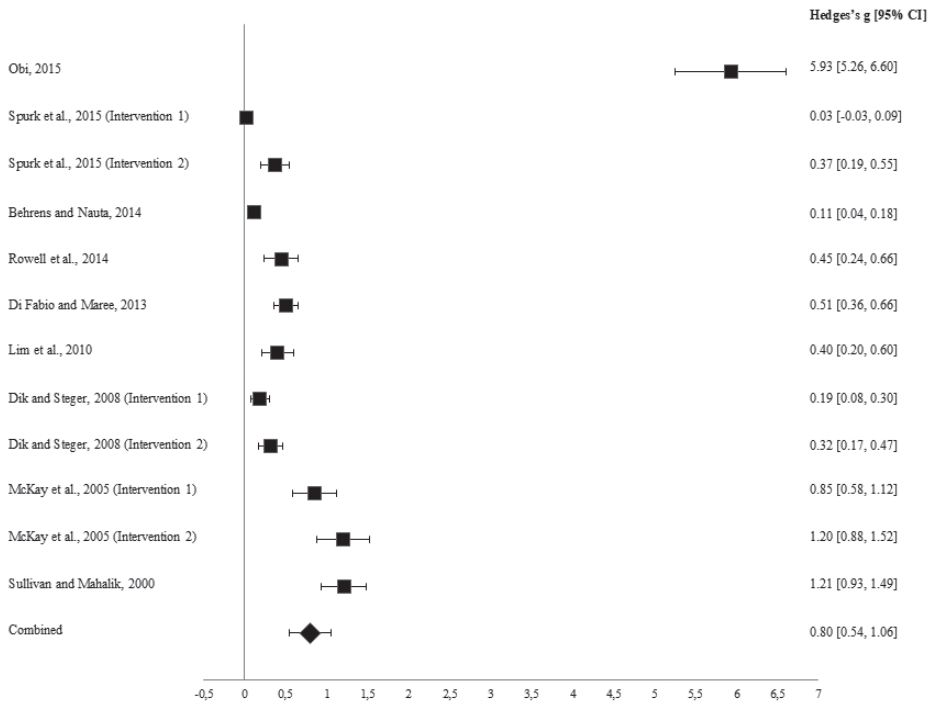


Figure 1. – Forest plot from the meta-analysis results on the effectiveness of the examined interventions.

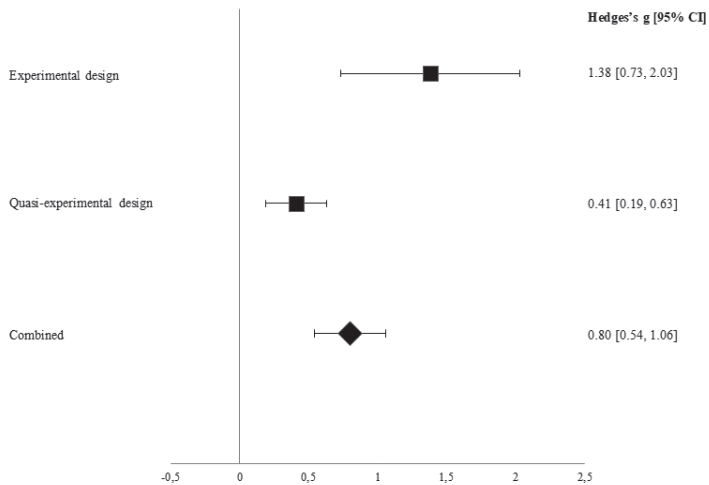


Figure 2. – Forest plot from the meta-analysis results by study design.

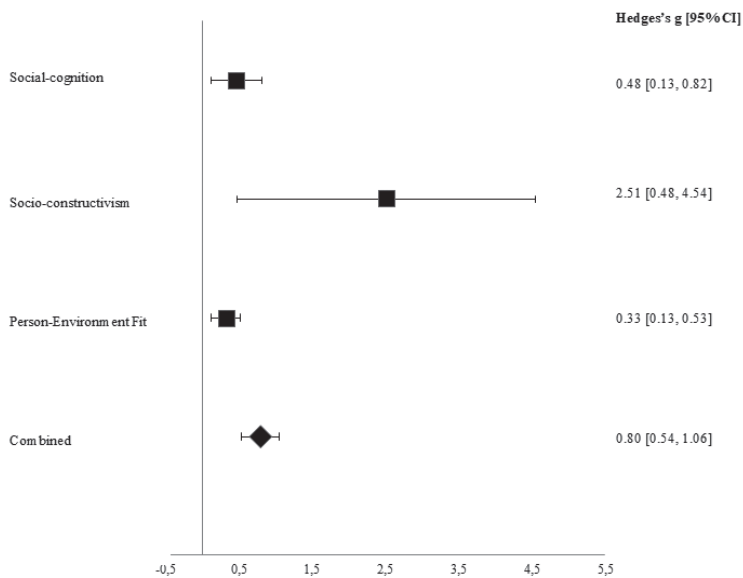


Figure 3. – Forest plot from the meta-analysis results by reference theoretical model.

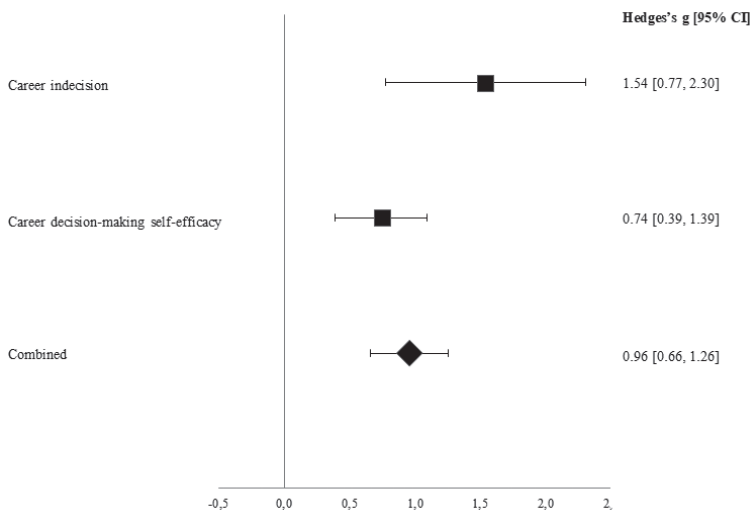


Figure 4. – Forest plot from the meta-analysis results by outcome (career indecision and career decision-making self-efficacy)

No statistically significant correlation was detected between ES and other studies' information: total number of study participants ($r_t = .031$, $p > .05$), number of treatment participants ($r_t = -.185$, $p > .05$), number of control participants ($r_t = -.034$, $p > .05$), length in hours ($r_t = -.078$, $p > .05$), number of sessions ($r_t = .197$, $p > .05$).

5. DISCUSSION

The results show that the interventions included in the present meta-analysis were based on the social cognition theory (SCT), the person-environment fit model and the social-constructivism, consistently with the main theoretical models existing in the literature (Hartung & Subich, 2011; Patton & McMahon, 2014). Career decision-making self-efficacy and career indecision are reported as main outcomes for intervention assessment, highlighting a focus of current research on decisiveness of university or graduate students in defining their future career path. This seems to stress the importance of personal abilities for self-fulfillment rather than the capability to adapt to mutable social, economic and professional conditions of the labor market (Salas, 2013). The average weighted ES resulting from this meta-analytic study was equal to .80, indicating a large effect, consistently with the previous study by Spokane and Oliver (1983). This seems to be a surprising finding because past research has demonstrated that ES is generally lower for college students than for high school or pre-teenage ones (Oliver & Spokane, 1988; Whiston, Sexton, & Lasoff, 1998). Besides, better effects emerged from socio-constructivist interventions compared to those based on social cognition theory and person-environment fit model: this may suggest that enhancing flexibility and adaptability to cope with occupational challenges can better succeed in guaranteeing decisiveness by enhancing the sense of coherence and continuity within a labour market, that is currently characterized by multiple transitions and not linear career paths (Savickas, 2012). A further finding concerns the higher effects on reducing career indecision rather than on increasing career decision-making self-efficacy, consistently with the study by Whiston *et al.* (1998). We could hypothesize that the strong instability of the contemporary labour market in terms of employability, competencies and demands (Wickramasinghe & Perera, 2010) may evoke higher feelings of uncertainty – especially in the transition from university to labour market – as main motivational trigger to participate in such career interventions. Therefore, it is possible that this kind of interventions may have a-specific factors which mainly can act as supportive and reduce the perceived complexity of

the labour market, thus consenting to experience worries and anxiety about one's career development to a lesser extent. On the other hand, the relatively lower – although meaningful – effect on decision-making self-efficacy could be influenced by the scarce direct experience of actual work settings which could make the respondents more cautious in self-attributing increased abilities. With regard to the intervention length, our study revealed that neither the length of time nor the number of sessions were associated with ES, in line with findings by Whiston *et al.* (1998), despite this may be due to the limited number of studies included in the present meta-analysis.

In conclusion, this study may be useful to provide further knowledge about the effects of career interventions for university or graduate students, who represent a specific target population scarcely examined in depth in previous research.

A further added value of this meta-analysis consists in the selection of studies with experimental or quasi-experimental designs in order to achieve robust findings about the effectiveness of such interventions, consistently with the requirements of current policies in terms of accountability and costs-benefits analysis in educational and professional fields (Argentin *et al.*, 2014; Caputo & Rastelli, 2014; Fregonese, Caputo, & Langher, 2018).

However, some limitations need to be advocated. Given the low number of examined studies, the results of the present meta-analysis should be considered only as descriptive and providing general clues which need to be further explored and confirmed in future research. In this regard, some correlations were not performed due to the scarce number of studies, such as the relationship between ES and the type of career intervention.

Overall, two main methodological issues emerged in the analysis of the examined studies. The first one concerns the authors' tendency not to provide clear information about the drop-out rate in RCTs, an aspect which may negatively affect the internal validity, and not to adequately consider attrition in estimating the effects of interventions based on all participants assigned to treatment (Intention-To-Treat, ITT) and not only on those completing it (Average Treatment Effect, ATE). Besides, only three studies reported follow-up measures, thus not consenting to estimate long-term effects of such interventions. Therefore, these two issues should be taken into account as future recommendations for researchers and policy makers in the field of career assessment.

With regard to future research perspectives, the large ES resulting from this meta-analysis seems to be a promising finding about the actual effectiveness of career interventions for university and graduate students. This suggests the need for developing further evaluation studies about career interventions for this target population, which could also contribute to dis-

entangle the potential effects depending on the specific types of delivered interventions.

With regard to practical implications, our results highlight the better outcomes of socio-constructivism based interventions, thus revealing the importance of focusing on professional identity and autobiographical narratives as pinpoints orienting the career intervention design. Besides, the higher effects on the reduction of career indecision represent a relevant clue about the need for intervening on the uncertainty perceived toward the labour market and one's own career development. From this perspective, in the transition from university to work settings the operative and instrumental dimension of the professional planning, self-promotability and entrepreneurship needs to be integrated with the subjective and identity dimension involved in the sense-making processes affecting the way in which people perceive and interact with work reality (Lehman *et al.*, 2015). In this sense, career interventions could benefit from a focus on the relationship between the self and the labour market, which seems to be well grasped by the most recent developments of the psychodynamic approach to career guidance and counselling. Such an approach may help participants to elaborate representations and meanings of self and jobs, and integrate subjective desires and objective possibilities (Lehman *et al.*, 2015). However, to our knowledge, evaluation studies about psychodynamically-oriented interventions are lacking to date – probably because of the problems of both conceptualization and measurement in the related empirical research – and might be developed in the future, thus contributing to enlarge the perspectives of career interventions.

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RIASSUNTO

L'utilità di offrire interventi di sviluppo professionale nella transizione dall'università al mercato del lavoro viene sempre più sostenuta, al fine di incrementare le competenze dei giovani circa la gestione della propria carriera e le loro capacità imprenditoriali. Il presente lavoro intende focalizzarsi sull'efficacia degli interventi di sviluppo professionale per studenti universitari o laureati, anche in relazione ad alcune caratteristiche di disegno degli

studi e degli interventi in esame. È stata condotta una meta-analisi sugli studi pubblicati tra il 2000 e il 2015 che rispondevano ai seguenti criteri di inclusione: la presenza di studenti universitari e laureati quale popolazione target, la valutazione di specifici interventi e programmi di sviluppo professionale, l'utilizzo di un disegno sperimentale o quasi-sperimentale. La procedura di selezione ha individuato 9 studi eleggibili – complessivamente volti a valutare 12 interventi – su 823 articoli esaminati. I risultati hanno mostrato in media un effetto elevato (weighted ES = .80; 95% CI = .54, 1.06), con migliori esiti per gli interventi di matrice socio-costruttivista nel confronto con interventi basati sulla teoria sociale cognitiva o sul modello dell'adattamento persona-ambiente, e un più forte impatto sulla riduzione dell'indecisione professionale rispetto all'aumento dell'autoefficacia decisionale. Il lavoro fornisce alcune raccomandazioni a ricercatori e «policy maker», discutendo inoltre alcune questioni metodologiche e implicazioni pratiche connesse a interventi di sviluppo professionale.

Parole chiave: Disegno sperimentale o quasi-sperimentale; Intervento di sviluppo professionale; Meta-analisi; Studenti universitari o laureati; Valutazione di sviluppo professionale.

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